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27879   7590   12/29/2009

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CAPITAL CENTER, SUITE 1100
201 NORTH ILLINOIS STREET
INDIANAPOLIS, IN 46204-4220

EXAMINER
HOLDER, ANNER N

ART UNIT	PAPER NUMBER
2621	

DATE MAILED: 12/29/2009

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/810,792	03/26/2004	Kazuo Sugimoto	9683/180	9618

TITLE OF INVENTION: VIDEO ENCODING APPARATUS, VIDEO ENCODING METHOD, VIDEO ENCODING PROGRAM, VIDEO DECODING APPARATUS, VIDEO DECODING METHOD AND VIDEO DECODING PROGRAM

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1510	$300	$0	$1810	03/29/2010

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. **PROSECUTION ON THE MERITS IS CLOSED.** THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN **THREE MONTHS** FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. **THIS STATUTORY PERIOD CANNOT BE EXTENDED.** SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PTOL-85 (Rev. 08/07) Approved for use through 08/31/2010.

Complete and send this form, together with applicable fee(s), to: <u>Mail</u> **Mail Stop ISSUE FEE**
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_____ (Depositor's name)

_____ (Signature)

_____ (Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/810,792	03/26/2004	Kazuo Sugimoto	9683/180	9618

TITLE OF INVENTION: VIDEO ENCODING APPARATUS, VIDEO ENCODING METHOD, VIDEO ENCODING PROGRAM, VIDEO DECODING APPARATUS, VIDEO DECODING METHOD AND VIDEO DECODING PROGRAM

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1510	$300	$0	$1810	03/29/2010

EXAMINER	ART UNIT	CLASS-SUBCLASS
HOLDER, ANNER N	2621	375-240160

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,

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1 _____

2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. The following fee(s) are submitted:

❑ Issue Fee

❑ Publication Fee (No small entity discount permitted)

❑ Advance Order - # of Copies _____

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❑ A check is enclosed.

❑ Payment by credit card. Form PTO-2038 is attached.

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

❑ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

❑ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

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This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.
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EXAMINER
HOLDER, ANNER N

ART UNIT	PAPER NUMBER
2621	

DATE MAILED: 12/29/2009

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 687 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 687 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

PTOL-85 (Rev. 08/07) Approved for use through 08/31/2010.

	Application No.	Applicant(s)
Notice of Allowability	10/810,792	SUGIMOTO ET AL.
	Examiner	Art Unit
	ANNER HOLDER	2621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to _08/12/09_.

2. ☒ The allowed claim(s) is/are _21-24,26,29-40,42 and 44-47_.

3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a) ☒ All   b) ☐ Some*   c) ☐ None   of the:

        1. ☒ Certified copies of the priority documents have been received.

        2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

        3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

     * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

    (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

        1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.

    (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of
        Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)

2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3. ☐ Information Disclosure Statements (PTO/SB/08),
    Paper No./Mail Date _____

4. ☐ Examiner's Comment Regarding Requirement for Deposit
    of Biological Material

5. ☐ Notice of Informal Patent Application

6. ☐ Interview Summary (PTO-413),
    Paper No./Mail Date _____ .

7. ☒ Examiner's Amendment/Comment

8. ☒ Examiner's Statement of Reasons for Allowance

9. ☐ Other _____.

EXAMINER'S AMENDMENT

1.   An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Karl Horlander on 12/17/09.

2.   The application has been amended as follows:

a.   Claims are to be amended as listed below - a line through indicates deletion; [[ ]] indicates removal/replacement, underline indicates addition to the claim.

21.   A video encoding method comprising: dividing a coding target frame into a plurality of blocks, wherein each of the blocks corresponds to a predicted reference image to be generated; determining a motion vector for each of the blocks; extracting, for an operable block within the blocks, motion complexity information of the operable block ~~based upon the motion vector of the operable block and the motion vector of each of the blocks in the coding target frame that neighbor the operable block~~, wherein the motion complexity information of the operable block indicates a degree of complexity of movement between the operable block of the coding target frame and a corresponding block in a reference frame; determining, for the operable block, a number of funny position pixels to include in the predicted reference image

to be generated for the operable block based upon the motion complexity information of the operable block, wherein the <u>determined</u> number of funny position pixels included in the predicted reference image increases as the degree of complexity of movement of the operable block increases; ~~and~~ generating the predicted reference image for the operable block, wherein the predicted reference image for the operable block includes integer pixels located at integer pixel positions within the predicted reference image, interpolated pixels located at interpolated pixel positions within the predicted reference image, and the determined number of funny position pixels[[.]]<u>;</u> <u>generating the predicted reference image corresponding to the coding target frame as a function of the motion vector determined for each of the blocks of the coding target frame; calculating a difference between the coding target frame and the predicted reference image for each of said blocks; converting the difference between the coding target frame and the predicted reference image for each of said blocks into a set of coefficients based upon a predetermined conversion rule; determining a number of non-zero coefficients in each set of coefficients for each of said blocks; and wherein extracting motion complexity information of the operable block comprises: determining a number of non-zero coefficients in the blocks that neighbor the operable block, wherein the motion complexity information of the operable block is based upon the number of non-zero coefficients in the blocks that neighbor</u>

the operable block.

24.   The video encoder method of claim 23, wherein the interpolated pixels
are generated with an interpolation algorithm, and for each of the <u>interpolated
~~interpolator~~</u> pixels, the interpolator algorithm including a high-frequency cutoff
characteristic; wherein the funny position pixels are generated with a low-pass
filter, wherein the low-pass filter includes a high-frequency cutoff
characteristic; and wherein for a respective funny position pixel of the funny
position pixels, the high-frequency cutoff characteristic of the low-pass filter
used to generate the respective funny position pixel is less than the high-
frequency cutoff characteristic of the interpolator algorithm used to generate
the interpolated pixels that neighbor the respective funny position pixel.

26.   The video encoding method of claim 21, wherein determining, for the
operable block, the <u>determined</u> number of funny position pixels to include in
the predicted reference image, further comprises: determining whether the
degree of complexity of movement of the operable block exceeds a threshold;
and in response to determination that the degree of complexity of movement
of the operable block exceeds the threshold, selecting the determined number
of funny position pixels to be greater than one.

31.   The video encoding method of claim 30, wherein the determined number of funny pixels includes a funny <u>position</u> pixel located at a funny position location, and wherein generating the determined number of funny position pixels further comprises: calculating the pixel value for the funny position pixel based upon the integer pixels located in a horizontal line of pixels of the coding target frame that are spatially closest to the funny position location[[s]] of the funny position pixel.

32.   A computer readable media comprising: computer program code executable on a processor, the computer program code including instructions to: divide a coding target frame into a plurality of blocks, wherein each of the blocks corresponds to a predicted reference image to be generated; determine a motion vector for each of the blocks; extract, for an operable block within the blocks, motion complexity information of the operable block ~~based upon the motion vector of the operable block and the motion vector of each of the blocks in the coding target frame that neighbor the operable block,~~ wherein the <u>motion</u> complexity information of the operable block indicates a degree of complexity of movement between the operable block of the coding target frame and a corresponding block in a reference frame; determine, for the operable block, a number of funny position pixels to include in the predicted reference image to be generated for the operable block based upon

the motion complexity information of the operable block, wherein the determined number of funny position pixels included in the predicted reference image increases as the degree of complexity of movement of the operable block increases; and generate the predicted reference image for the operable block, wherein the predicted reference image for the operable block includes integer pixels located at integer pixel positions within the predicted reference image, interpolated pixels located at interpolated pixel positions within the predicted reference image, and the determined number of funny position pixels[[.]]; generate the predicted reference image corresponding to the coding target frame as a function of the motion vector determined for each of the blocks of the coding target frame; calculate a difference between the coding target frame and the predicted reference image for each of said blocks; convert the difference between the coding target frame and the predicted reference image for each of said blocks into a set of coefficients based upon a predetermined conversion rule; and wherein the instructions to extract the motion complexity information of the operable block comprises instructions to determine a number of non-zero coefficients in said blocks that neighbor the operable block, wherein the motion complexity information of the operable block is based upon the number of non-zero coefficients in said blocks that neighbor the operable block.

34.   The computer readable media of claim 32, further comprising instructions to: generate a predicted <u>reference</u> image corresponding to the coding target frame as a function of the motion vector determined for each of the blocks of the coding target frame; calculate a difference between the coding target frame and the predicted <u>reference</u> image for each of said blocks; convert the difference between the coding target frame and the predicted <u>reference</u> image for each of said blocks into a set of coefficients based upon a predetermined conversion rule; determine the number of non-zero coefficients in each set of coefficients for each of said blocks; and determine a number of non-zero coefficients in said blocks that neighbor the operable block, wherein the complexity information of the operable block is based upon the number of non-zero coefficients.

38.   A video decoding method comprising: dividing a decoding target frame into a plurality of blocks, wherein each of the blocks corresponds to a predicted <u>reference</u> image to be generated; decoding a compressed data stream to generate a motion vector for an operable block and a motion vector for each of the blocks in the decoding target frame that surround the operable block in the decoding target frame; extracting, for an operable block within the blocks, motion complexity information of the operable block ~~based upon the motion vector of the operable block and the motion vector for each of the~~

~~blocks in the decoding target frame that surround the operable block~~, wherein the complexity information of the operable block indicates a degree of complexity of movement between the operable block of the decoding target frame and a corresponding block in a reference frame; determining, for the operable block, a number of funny position pixels to include in the predicted <u>reference</u> image to be generated for the operable block based upon the motion complexity information of the operable block, wherein the number of funny position pixels included in the predicted <u>reference</u> image increases as the degree of complexity of movement of the operable block increases; ~~and~~ generating the predicted <u>reference</u> image for the operable block based upon ~~reference~~ <u>integer</u> pixels of the corresponding block in the reference frame, ~~the~~ ~~reference~~ <u>integer</u> pixels of blocks in the reference frame that surround the corresponding block, the motion vector of the operable block, and the motion vector of each of the blocks that surround the operable block in the decoding target frame, wherein the predicted <u>reference</u> image for the operable block includes integer pixels located at integer pixel positions within the predicted <u>reference</u> image, interpolated pixels located at interpolated pixel positions within the predicted <u>reference</u> image, and the determined number of funny position pixels[[.]]<u>; generating the predicted reference image corresponding to the decoding target frame as a function of the motion vector determined for each of the blocks of the decoding target frame; calculating a difference</u>

between the decoding target frame and the predicted reference image for each of said blocks; converting the difference between the decoding target frame and the predicted reference image for each of said blocks into a set of coefficients based upon a predetermined conversion rule; and wherein extracting motion complexity information of the operable block comprises: determining a number of non-zero coefficients in said blocks that neighbor the operable block, wherein the complexity information of the operable block is based upon the number of non-zero coefficients in said blocks that neighbor the operable block.

42.   (Currently Amended) The video decoding method of claim 38, wherein determining, for the operable block, the number of funny position pixels to include in the predicted reference image, further comprises: determining whether the degree of complexity of movement of the operable block exceeds a threshold; and   in response to determination that the degree of complexity of movement of the operable block exceeds the threshold, selecting the determined number of funny position pixels to be greater than one.

47.   A computing system comprising: a storage medium including stored therein a plurality of executable instructions; and a[[n]] processor coupled to the storage medium, the processor configured to execute at least a subset of

the plurality of executable instructions to implement a method according to claim 38.

b.   Further the claims are amended to reflect the renumbering to place them in numerical order as follows

i.   Claim 26 should be changed to Claim 25.

ii.   Claim 29 should be changed to Claim 26.

iii.   Claim 30 should be changed to Claim 27.

iv.   Claim 31   should be changed to Claim 28. Further the claim should be changed to read as follows at line 5 page 5: adding "The video encoding method of claim 27," deleting "The video encoding method of claim 30,"

v.   Claim 32 should be changed to Claim 29.

vi.   Claim 33   should be changed to Claim 30. Further the claim should be changed to read as follows at line 1 page 7: adding "The computer readable media of claim 29," deleting "The computer readable media of claim 32,"

vii.   Claim 34   should be changed to Claim 31. Further the claim should be changed to read as follows at line 7 page 7: adding "The computer readable media of claim 29," deleting "The computer readable media of claim 32,"

viii.   Claim 35   should be changed to Claim 32. Further the claim

should be changed to read as follows at line 1 page 8: adding "The computer readable media of claim 29," deleting "The computer readable media of claim 32,"

ix.   Claim 36 should be changed to Claim 33. Further the claim should be changed to read as follows at line 10 page 8: adding "The computer readable media of claim 29," deleting "The computer readable media of claim 32,"

x.   Claim 37 should be changed to Claim 34. Further the claim should be changed to read as follows at line 21 page 8: adding "The computer readable media of claim 29," deleting "The computer readable media of claim 32,"

xi.   Claim 38 should be changed to Claim 35.

xii.   Claim 39 should be changed to Claim 36. Further the claim should changed to read as follows at line 1 page 11: adding "The video decoding method of claim 35," deleting "The video decoding method of claim 38,"

xiii.   Claim 40 should be changed to Claim 37. Further the claim should be changed to read as follows at line 8 page 11: adding "The video decoding method of claim 35," deleting "The video decoding method of claim 38,"

xiv.   Claim 42 should be changed to Claim 38. Further the claim

should be changed to read as follows at line 22 page 11: adding "The video decoding method of claim 35," deleting "The video decoding method of claim 38,"

xv.   Claim 44 should be changed to Claim 39. Further the claim should be changed to read as follows at line 11 page 12: adding "The video decoding method of claim 35," deleting "The video decoding method of claim 38,"

xvi.   Claim 45 should be changed to Claim 40. Further the claim should be changed to read as follows at line 20 page 12: adding "The video decoding method of claim 39," deleting "The video decoding method of claim 44,"

xvii.   Claim 46 should be changed to Claim 41. Further the claim should be changed to read as follows at lines 5-7 page 13: adding "A tangible computer readable media comprising: computer program code executable on a processor, the computer program code including instructions to implement the method according to claim 35." deleting "A tangible computer readable media comprising: computer program code executable on a processor, the computer program code including instructions to implement the method according to claim 38."

xviii.   Claim 47 should be changed to Claim 42. Further the claim should be changed to read as follows at lines 9-13 page 13: adding "A

computing system comprising: a storage medium including stored therein a plurality of executable instructions; and a[[n]] processor coupled to the storage medium, the processor configured to execute at least a subset of the plurality of executable instructions to implement a method according to claim 35." deleting "A computing system comprising: a storage medium including stored therein a plurality of executable instructions; and a[[n]] processor coupled to the storage medium, the processor configured to execute at least a subset of the plurality of executable instructions to implement a method according to claim 38."

Allowable Subject Matter

3.   Claims 21-24, 26, 29, 30-31, 32-40, 42, and 44-47 are allowed.

The following is an examiner's statement of reasons for allowance: The cited prior art fails to teach the applicant's claimed invention as follows: blocks corresponds to a predicted reference image to be generated; determining a motion vector for each of the blocks; extracting, for an operable block within the blocks, motion complexity information of the operable block, wherein the motion complexity information of the operable block indicates a degree of complexity of movement between the operable block of the coding target frame and a corresponding block in a reference frame; determining, for the operable block, a number of funny position pixels to include in the predicted

reference image to be generated for the operable block based upon the motion complexity information of the operable block, wherein the determined number of funny position pixels included in the predicted reference image increases as the degree of complexity of movement of the operable block increases; generating the predicted reference image for the operable block, wherein the predicted reference image for the operable block includes integer pixels located at integer pixel positions within the predicted reference image, interpolated pixels located at interpolated pixel positions within the predicted reference image, and the determined number of funny position pixels; generating the predicted reference image corresponding to the coding target frame as a function of the motion vector determined for each of the blocks of the coding target frame; calculating a difference between the coding target frame and the predicted reference image for each of said blocks; converting the difference between the coding target frame and the predicted reference image for each of said blocks into a set of coefficients based upon a predetermined conversion rule; determining a number of non-zero coefficients in each set of coefficients for each of said blocks; and wherein extracting motion complexity information of the operable block comprises: determining a number of non-zero coefficients in the blocks that neighbor the operable block, wherein the motion complexity information of the operable block is based upon the number of non-zero coefficients in the blocks that neighbor

the operable block.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

4.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANNER HOLDER whose telephone number is (571)270-1549. The examiner can normally be reached on M-W, M-W 8 am-3 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on 571-272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Anner Holder/
Examiner, Art Unit 2621
/Tung Vo/
Primary Examiner, Art Unit 2621